

NATURAL RESOURCES CONSERVATION SERVICE  
MONTANA CONSERVATION PRACTICE STANDARD

## SILVOPASTURE ESTABLISHMENT (ACRE)

### CODE 381

#### DEFINITION

An agroforestry application establishing a combination of trees or shrubs and compatible forages on the same acreage.

Forage species must be **suited and** adapted to the **soils, climate and** site and compatible with the planned **purpose and** management of the site.

See the **Montana Field Office Technical Guide (FOTG), Section II, Conservation Tree/Shrub Suitability Group (CTSG) for a detailed listing of species suited for various soils and climatic conditions.**

#### PURPOSE

- Provide forage for livestock and the production of wood products.
- Increase carbon sequestration.
- Improve water quality.
- Reduce erosion.
- Enhance wildlife habitat.
- Reduce fire hazard.
- Provide shade for livestock.

Where trees will be added to existing pasture, site preparation should be based on existing vegetation and soil conditions (See **Field Office Technical Guide (FOTG), Section IV – practice Tree/Shrub Site Preparation Standard – Code 490**).

Trees will be planted at the recommended tree density (See **Field Office Technical Guide (FOTG), Section IV – practice Tree/Shrub Establishment Standard – Code 612**).

#### CONDITIONS WHERE PRACTICE APPLIES

Situation where silvopasture establishment applies includes: 1) pasture where trees or shrubs can be added; 2) forest where forages can be added; 3) land on which neither the desired trees nor forages exist in sufficient quantity to meet the land user's objectives.

For existing forests **and plantations**, remove a sufficient number of trees and/or prune existing trees to allow adequate light penetration for forage establishment **and silvopasture use**.

Establishment of forage species will be in accordance with **Field Office Technical Guide (FOTG), Section IV – practice Pasture and Hay Planting Standard – Code 512 or Range Planting Standard – Code 550**.

This practice may be applied on any area that is suitable for the desired plants.

When using pesticides follow label recommendations and **Field Office Technical Guide (FOTG), Section IV – practice Pest Management Standard – Code 595**.

#### CRITERIA

##### General Criteria Applicable to All Purposes

Tree species must be **suited and** adapted to the **soils, climate and** site and compatible with planned **purpose and** livestock management.

Only viable, high quality, and adapted planting stock or seed will be used.

The planting shall be done at a time and manner to insure survival and growth of selected species.

NRCS, MT  
November 2006

**Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard contact the Natural Resources Conservation Service.**

**NOTE:** This type of font (**AaBbCcDdEe 123..**) indicates NRCS National Standards.  
This type of font (**AaBbCcDdEe 123..**) indicates Montana Supplement.

Tree/shrub spacing needs to exceed width of equipment to be used in management.

#### **Additional Criteria to Provide Forage for Livestock and the Production of Forest Products**

The forage species must be identified as suitable for the targeted livestock.

Livestock grazing shall be deferred until the average height of the tree's terminal bud exceeds the browsing height of the livestock or of sufficient size to resist breakage or until suitable use exclusion measures for the protection of the woody plants are established. A forage crop (hay, silage, etc.) may be **mechanically** harvested during this period.

Plant trees at an appropriate density to allow acceptable forage production and wood products.

The tree or shrub species must have potential to produce forest products.

#### **Additional Criteria to Increase Carbon Sequestration**

For optimal carbon sequestration, select plants that have higher rates of sequestration and are adapted to the site to assure strong health and vigor.

Plant and manage the appropriate stocking rate for the site to maximize biomass production.

#### **Additional Criteria to Improve Water Quality**

Favor trees, shrubs and forages that have growth characteristics conducive to high nutrient uptake.

**Incorporate adequate conservation buffers if a water source (stream, pond, etc.,) is present.**

#### **Additional Criteria to Reduce Erosion**

Place linear woody plantings on or near the contour when water erosion is a concern.

**Water erosion and/or runoff from melting snow will be controlled by supporting practices.**

#### **Additional Criteria to Enhance Wildlife Habitat**

Establish or maintain forage species and understory shrubs that will provide forage, browse,

seed, cover or nesting habitat for the wildlife species of concern.

For additional guidance refer to **Field Office Technical Guide (FOTG), Section IV – practice standard Wildlife Upland Habitat Management – Code 645.**

#### **Additional Criteria to Provide Shade for Livestock**

**Trees should be uniformly spaced for even shade distribution.**

### **CONSIDERATIONS**

Failure to maintain adequate forage for livestock may result in excessive tree damage and/or loss.

Location and distribution of facilities for water, minerals, or supplemental feed should be such that livestock are not encouraged to over-utilize areas of silvopasture.

Rows or plantings should be oriented in an east-west orientation where feasible and practical to allow maximum sunlight onto grass strips.

If grazing does not maintain reduced fuel loads, prescribed burning should be considered providing the woody plants are fire adapted and will not be damaged.

Wildlife **needs** should be considered when selecting tree, shrub and forage species. Species diversity, including use of native species, should be considered.

Consideration should be given to adverse offsite effects.

Plants established in cropping systems should have root systems that have minimal impact on crop growth.

### **PLANS AND SPECIFICATIONS**

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, technical notes and narrative statements in the conservation plan, or other acceptable documentation.

**As a minimum, the Silvopasture Establishment practice will have the following components in its plan and specifications:**

- **A narrative that describes the producer's goals and objectives. Identify why the practice is needed and feasible.**
- **An environmental assessment of the planned practice that includes the potential impacts on soil, water, animals, plants, air and humans.**
- **An alternatives narrative that identifies and describes several methods that could be used to address the resource issue. Also identifying the producer selected method.**
- **The Montana Silvopasture Establishment practice job sheet and specification.**
- **Plan map and soil map of site with location of practice on the map.**
- **Operations and maintenance instructions.**
- **Trees or shrubs will also be protected from wildfire and damage from livestock and wildlife.**
- **Maintain a 25-35% canopy cover for optimal forage production and livestock use.**
- **Tree pruning may be needed to adjust light levels, improve wood products, or provide adequate space for machinery. Follow Field Office Technical Guide (FOTG), Section IV – practice standard Tree/Shrub Pruning – Code 660.**

## OPERATION AND MAINTENANCE

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance):

- **Restrict access by livestock when soils are at or above field capacity (saturated soil conditions).**
  - **Forage and forest management will follow Field Office Technical Guide (FOTG), Section IV – practice Prescribed Grazing – Code 528 and Forest Stand Improvement – Code 666 Standards.**
  - **Replanting will be required when plant survival or canopy cover is inadequate to meet practice and client objectives.**
  - **Competing vegetation will be controlled until the trees are established.**
  - **Periodic applications of nutrients may be needed for establishment and to maintain plant vigor. Refer to Nutrient Management Standard 590 for further guidance.**
  - **Inspect trees and shrubs periodically and protect from adverse impacts including insects, diseases, browsing or competing vegetation.**
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